

Medical Microbiology

Code: 42935
ECTS Credits: 6

Degree	Type	Year	Semester
4313775 Applied Microbiology	OB	0	1

Contact

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Use of languages

Principal working language: spanish (spa)

Prerequisites

It is necessary to have a basic previous knowledge about microorganisms capable of causing human disease: habitat, transmission forms, type of infections caused and identification.

Objectives and Contextualisation

Objectives:

- a) to acquire abilities to apply own scientific knowledge to Clinical Microbiology
- b) beginning to learn clinical reasoning method to be able to adapt to a clinical setting

Skills

- Continue the learning process, to a large extent autonomously.
- Design and apply scientific methodology in problem solving.
- Develop critical reasoning within the subject area and in relation to the scientific or business context.
- Display knowledge of the most up-to-date methodology used in environmental, molecular, industrial and clinical microbiology.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Interpret results from microbiological analyses in order to take appropriate decisions and propose solutions to biological problems in different areas.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Use scientific terminology to account for research results and present these orally and in writing.

Learning outcomes

1. Apply appropriate methodologies for conducting studies on sensitivity to antimicrobial agents.
2. Continue the learning process, to a large extent autonomously.
3. Design and apply scientific methodology in problem solving.
4. Design identification strategies aimed at making a microbiological diagnosis in the field of clinical microbiology.
5. Design typification strategies aimed at conducting epidemiological studies in the field of clinical microbiology.

6. Develop critical reasoning within the subject area and in relation to the scientific or business context.
7. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
8. Integrate microbiological findings with clinical data in order to diagnose an infectious human disease microbiologically.
9. Interpret microbiological findings appropriately in order to take decisions regarding microbial identification, study of resistance to antibiotics and typifications. Write up the reports on the above analyses.
10. Know the appropriate methods for processing human samples for microbiological analysis.
11. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
12. Use scientific terminology to account for research results and present these orally and in writing.

Content

- Introduction to medical reasoning
- Collection of specimens, transport and processing techniques
- Microorganism transmission: prevention on human health
- Application of microbiological techniques to the clinical laboratory
- Main infection syndromes: pathogenesis, etiology and diagnosis

Methodology

Learning method includes lecture lessons, clinical cases discussion, problem based learning, and personal study.

Power Point slides and text is given for every lecture. During lessons this material is enriched with real examples, taken from recent or past clinical cases.

In clinical sessions one or several cases are exposed and discussed according to clinical reasoning.

Problem based learning session has the objective to apply previous knowledge learned to solve a real clinical case.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Lectures	45	1.8	1, 10, 6, 4, 3, 8, 9, 11, 7, 2
Type: Supervised			
Clinical cases discussion	15	0.6	1, 6, 5, 4, 8, 9, 11, 7, 2
Problem based learning	5	0.2	1, 10, 6, 3, 8, 9, 11, 7, 2, 12
Written work	10	0.4	1, 10, 6, 3, 8, 9, 11, 7, 12
Type: Autonomous			
Personal study	70	2.8	1, 10, 6, 5, 4, 3, 8, 9, 11, 7, 2, 12

Evaluation

Lectures and clinical cases will be evaluated in a written exam. 80%

Problem based learning will be evaluated with a written work and oral exposition. 10%.

Attendance to lessons will count 10%

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Attendance	10	0	0	1, 10, 6, 4, 3, 8, 11, 7
Problem based learning	10	2	0.08	1, 10, 6, 5, 8, 9, 11, 7, 2, 12
Written exam	80	3	0.12	1, 10, 6, 5, 4, 3, 8, 9, 7

Bibliography

REFERENCES

- 1) Manual of Clinical Microbiology. American Society for Microbiology. Jorgensen J et al. 11th ed. ASM press. WashingtonDC. 2015
- 2) Guillem Prats. Microbiología Clínica. Editorial Panamericana. 2006
- 3) Guillem Prats. Microbiología y Parasitología Médicas. Editorial Panamericana. 2012.
- 4) Koneman's Color Atlas and Textbook of Diagnostic Microbiology. 7th ed. Lippincott, Williams and Wilking. 2016
- 5) Bailey & Scott's Diagnostic Microbiology. Patricia Tille, 13ª edición. Elsevier. 2013.
- 6) Cumitechs. ASM press (asmpress.org)

WWW

- <http://www.academia.cat/societats/microbio/index.asp>. CASOS CLÍNICOS.
- <http://www.isciii.es/> Web de l'Institut de Salut Carlos III.
- <http://www.eurosurv.org/> Centre de l'Unió Europea per al control de les malalties infeccioses
- <http://www.escmid.org/sites/index.aspx>. Web de la societat europea de malalties infeccioses i Microbiologia clínica
- <http://www.asm.org/> Web de la American Society for Microbiology.
- <http://www.microbelibrary.org/>. Web d'ensenyament de Microbiologia
- <http://www.cdc.gov/> y <http://www.cdc.gov/mmwr/index.html>. Web del Center for Disease Control i de la seva publicació principal (MMWR, Morbidity and Mortality Weekly Report).
- <http://www.seimc.org/> Web de la Sociedad de Enfermedades Infecciosas y Micobiología Clínica.
<http://seimc.org/documentos/protocolos/microbiologia/>